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Ando et al.

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(54) **DATA RECORDING MEDIUM, DATA RECORDING METHOD AND DATA REPRODUCING METHOD**

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(58) Field of Search **360/53, 77.04; 714/6, 8, 770, 5, 54; 369/53.35, 275.2, 275.3**

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,568,606 A * 10/1996 Dobbek

5,781,722 A * 7/1998 Buches, Jr.
5,790,333 A * 8/1998 Kimura et al. 360/60
5,966,358 A * 10/1999 Mine 369/58
6,049,515 A * 4/2000 Yamamuro 369/48
6,137,646 A * 10/2000 Okamura et al. 360/51
6,182,240 B1 * 1/2001 Mine 714/5
6,215,759 B1 * 4/2001 Tanoue et al. 369/275.3

* cited by examiner

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(57) **ABSTRACT**

This invention is to record data and skip an ECC block containing a defective sector when the defective sector is detected in an optical disk in which data is recorded in an ECC block unit constructed by 16 sectors and record a physical block number obtained by adding an amount of 16 sectors for each skipping into a reserve field of each sector of a next ECC block. Thus, continuous data such as moving pictures can be recorded in the ECC block unit, an ECC block containing the defective sector can be detected later in a case wherein the power supply is turned OFF by mistake or power failure in the course of recording when the recording process is effected while skipping an ECC block containing a defective sector, and data recorded up to the interruption can be reproduced without being influenced by the defective sector.

18 Claims, 14 Drawing Sheets

